PHYS 144: The Physics of Music and Sound

Frank Toffoletto

Fall 2018

Contact Information

Instructor: Frank Toffoletto
Office: HBH 362
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Office Hours: Open Door or by appointment

Course Objectives and Learning Outcomes

This course is designed to develop a scientific understanding of the relationship between music and sound, by exploring the properties of sound and its relation to musical instruments. We will examine the production of sound by a variety of musical instruments, how the resulting sound is propagated, and how it can be measured and analyzed. Additional topics to be covered include an analysis of musical scales, the physics and physiology of hearing, and the technology of sound reproduction. **This course is designed for non-science and non-engineering majors.**

The goal of this course is for you to acquire a physical understanding of the science behind sound and music. The use of formulas will be kept to a minimum and will be only used when necessary, but there will be some quantitative aspect to the class which will entail some calculations.

Required Texts and Materials

Physics and Music: The Science of Musical Sound (Dover Books on Physics) Reprint Edition by Harvey E. White, Donald H. White – It is an older book, but inexpensive at around $20, it is even cheaper used.

Publisher: Dover Publications; Reprint edition (June 18, 2014)

ISBN-13: 978-0486779348 / ISBN-10: 0486779343

Exams and Papers

The course assessment with consist of the following:

	% of Grade	Comments
2 in class tests	25	One test in early in the semester (10%), another at the end of the semester (15%).

Homework, reading quizzes, and in class assignments	35	
Project	30	Exact details TBD, will probably entail a group project and an in-class presentation.
Class participation	10	

Grade Policies

I will not use a curve to assign a grade, a 60 and higher is a pass, D = 60-69, C=70-79, B=80-89, A=90+. +/- grades will be given to numerical grades that fall at the borders between letter grades. (e.g., 89 =B+, 90=A-). The exact fine tuning will be decided at the end of the semester.

Late Policy

Unless there are mitigating circumstances, assignments will be due at specified dates. Any work handed in late will be subject to a 10%/day late fee for any part of the day late up to 50% off.

Absence Policies

You should inform me ahead of time when you will be away.

Rice Honor Code

In this course, all students will be held to the standards of the Rice Honor Code, a code that you pledged to honor when you matriculated at this institution. If you are unfamiliar with the details of this code and how it is administered, you should consult the Honor System Handbook at http://honor.rice.edu/honor-system-handbook/. This handbook outlines the University's expectations for the integrity of your academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process.

Disability Support Services

If you have a documented disability or other condition that may affect academic performance you should: 1) make sure this documentation is on file with Disability Support Services (Allen Center, Room 111 / adarice@rice.edu / x5841) to determine the accommodations you need; and 2) talk with me to discuss your accommodation needs.

Syllabus Change Policy

This syllabus is only a guide for the course and is subject to change with advanced notice.